

IMPROVED PRODUCTION OF PRENYLATED PROTEIN IN INSECT CELLS

SUMMARY

The National Cancer Institute seeks parties interested licensing and/or collaborative research to co-develop research materials for improved production of prenylated proteins.

REFERENCE NUMBER

E-009-2015

PRODUCT TYPE

- Research Materials

KEYWORDS

- Research Material
- Cancer
- KRAS
- Ras

COLLABORATION OPPORTUNITY

This invention is available for licensing.

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DESCRIPTION OF TECHNOLOGY

KRAS and other Ras-family enzymes are an important component of over 30% of human cancers, however, no effective therapeutics targeting Ras or Ras-driven cancers are currently available. The production of Ras proteins *in vitro* is required for the identification and characterization of Ras targeting drugs. An important step in producing the Ras protein involves prenylation of the C-terminus of the protein via farnesyltransferase, a modification that does not occur in prokaryotic organisms. Previous attempts to generate properly processed Ras in eukaryotic cells has produced only low levels of protein which has not been useful for structural studies or biochemical work.

Researchers at the [FNL Protein Expression Lab](#) developed reagents that can be used to produce prenylated proteins such as KRAS in high yield. Available for licensing are baculovirus vectors for overexpression of human FNTA and FNTB; recombinant baculovirus genomes (bacmids) containing overexpression constructs of FNTA, FNTB, or combinations thereof; and DH10BAC cell lines that

contain the modified bacmids and the baculovirus vectors. Baculovirus reagents for high-yield (>10 mg/L) production of properly processed KRAS are also available.

POTENTIAL COMMERCIAL APPLICATIONS

- Production of proteins for use in identification and characterization of drugs targeting Ras
- Potential to generate other prenylated proteins

COMPETITIVE ADVANTAGES

- Production of prenylated proteins, such as Ras, in high yield
- Prenylated proteins produced using this method show membrane interaction activities that recapitulate in vivo activities not observed with bacterial produced proteins

INVENTOR(S)

[Dominic Esposito](#) (NCI); Carissa Grosse (NCI); William Gillette (NCI)

DEVELOPMENT STAGE

- Discovery (Lead Identification)

PATENT STATUS

- **Not Patented:** Research Material: NCI will not enter into patent prosecution

THERAPEUTIC AREA

- Cancer/Neoplasm